

WHAT IS CLAIMED IS:

1. A solvent free coating composition comprising:

(A) a solid linear alcohol at room temperature;

5 (B) a thermoplastic binder; and

(C) a wax;

wherein, the coating composition is solid at room temperature, has a melting point of at least about 75°C, and when heated to a temperature between about 90°C and about 135°C, forms a coating composition which has a coating
10 viscosity between about 100 cps and about 1200 cps.

2. The coating composition of claim 1, wherein the viscosity is between about 100 cps and about 700 cps.

15 3. The coating composition of claim 1, wherein the solid linear alcohol is a fully saturated, long-chain linear alcohol having a melting point of about 75°C or greater and a number-average molecular weight (Mn) of about 350 or greater.

20 4. The coating composition of claim 3, wherein the linear alcohol has a Mn between about 350 and about 750 and a melting point between about 75°C and about 110°C.

25 5. The coating composition of claim 3, wherein the linear alcohol has a Mn of about 550, a melting point of about 99°C, a hydroxyl number of about 83, and a viscosity at 149°C of about 5.5 cps.

6. The coating composition of claim 1, wherein the thermoplastic binder is selected from the group consisting of ethylene copolymers, hydrocarbon resins, and a combination thereof.

5 7. The coating composition of claim 6, wherein the thermoplastic binder is an ethylene copolymer.

8. The coating composition of claim 7, wherein the ethylene copolymer is selected from the group consisting of ethylene-acrylic acid copolymers, ethylene-vinyl acetate copolymers, and combinations thereof.

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9. The coating composition of claim 8, wherein the ethylene copolymer is an ethylene-acrylic acid copolymer.

15 10. The coating composition of claim 9, wherein the ethylene-acrylic acid copolymer has an acid number of about 40 and about 120 and a Brookfield viscosity at 140°C of about 100 cps to about 1000 cps.

11. The coating composition of claim 9, wherein the ethylene-acrylic acid copolymer has an acid number of about 120 and a Brookfield viscosity at 140°C of about 650 cps.

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12. The coating composition of claim 8, wherein the ethylene copolymer is an ethylene-vinyl acetate copolymer.

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13. The coating composition of claim 12, wherein the ethylene-vinyl acetate copolymer contains between about 15 wt.% to about 50 wt.%, based on the weight of the copolymer, of vinyl acetate.

14. The coating composition of claim 12, wherein the ethylene-vinyl acetate copolymer contains about 40 wt.%, based on the weight of the copolymer, of vinyl acetate and has a Melt Index of about 52.

5 15. The coating composition of claim 1, wherein the thermoplastic binder is present in an amount from about 35 wt.% to about 65 wt.%.

16. The coating composition of claim 1, wherein the thermoplastic binder is present in an amount from about 45 wt.% to about 60 wt.%.

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17. The coating composition of claim 1, wherein the wax is selected from the group consisting of highly branched hydrocarbon waxes, polyethylene homopolymer waxes, oxidized polyethylene waxes, animal waxes, vegetable waxes, and combinations thereof.

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18. The coating composition of claim 17, wherein the wax is a highly branched hydrocarbon wax.

19. The coating composition of claim 17, wherein the highly
20 branched hydrocarbon wax has a number average molecular weight (Mn) of about 520, a softening point of about 67°C, and a viscosity at 99°C of about 6 cps.

20. The coating composition of claim 17 wherein the wax is a
25 polyethylene homopolymer wax.

21. The coating composition of claim 20, wherein the polyethylene homopolymer wax is polyethylene having a number average molecular weight

(Mn) of about 1000 - 1200, a molecular weight distribution of about 1 to about 2, and a melting point of about 82°C to about 104°C.

22. The coating composition of claim 21, wherein the molecular
5 weight distribution is from about 1.2 to about 1.5.

23. The coating composition of claim 17, wherein the wax is an animal wax.

10 24. The coating composition of claim 23, wherein the animal wax is a spermaceti wax.

25. The coating composition of claim 1, wherein the wax is present in an amount from about 5 wt.% to about 50 wt.%.

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26. The coating composition of claim 1, wherein the wax is present from about 30 wt.% to about 40 wt.%.

27. The coating composition of claim 1 further comprising a solid
20 plasticizer.

28. The coating composition of claim 27, wherein the solid plasticizer is dicyclohexylphthalate.

25 29. The coating composition of claim 27, wherein the solid plasticizer is present in amount from about 3 wt.% to about 15 wt.%.

30. The coating composition of claim 27, wherein the solid plasticizer is from about 5 wt.% to about 10 wt.%.

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31. A hot melt coating composition comprising the coating composition of claim 1.

32. A flexographic printing coating composition comprising the
5 coating composition of claim 1 and a pigment.

33. A method of preparing a hot melt coating composition comprising:
providing a coating composition having:

- (A) a linear alcohol which is a solid at room temperature;
- 10 (B) a thermoplastic binder;
- (C) a wax; and

heating the coating composition to a temperature between about 90°C and about 135°C to form a hot melt coating composition which has a coating viscosity between about 100 cps and about 1200 cps.

15 34. The method of claim 33, wherein the coating composition has a coating viscosity between about 100 cps and about 700 cps.

35. A method for preparing a flexographic printing coating
20 composition for hot melt flexographic printing comprising:

- (A) preparing a pigment dispersion by mixing a pigment with a solid linear alcohol and heating to a temperature above the melting point of the alcohol;
- (B) preparing a varnish by mixing (i) a thermoplastic binder and (ii) a
25 wax and heating to a temperature above the melting point of the varnish mixture; and
- (C) adding the pigment dispersion to the varnish and mixing to form a homogenous coating composition with a coating viscosity between about 100

cps and about 1200 cps at a temperature between about 90°C and about 135°C.

5 36. The method of claim 35, wherein the viscosity is between about 100 cps and about 700 cps.

 37. The method of claim 35, wherein the homogenous coating composition is cooled to room temperature to form a solid flexographic printing coating composition.

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 38. The method of claim 35, wherein the pigment dispersion is cooled to room temperature to form a solid prior to step (C).